**Az ELTE Kémiai Intézet,
a Magyar Aeroszol Társaság,
a Budapest Aeroszol Kutató és
Oktató Platform (BpART)
tisztelettel meghívja**

ADVANCES IN AEROSOL SCIENCE

**című tudományos ülésére angol nyelven
az ELTE Lágymányosi Kampusz, kémiai épület (Budapest, Pázmány stny. 1/A),
földszinti, 062 számú (Gróh-) termébe**

2018. szeptember 27-én, csütörtökön 15:30 órai kezdettel

Program:

15:30–15:40 Opening and introduction

László TÚRI, ELTE Institute of Chemistry, vice director for scientific affairs
Imre SALMA, Budapest Platform for Aerosol Research and Training, head

15:40–16:35 Vapour Nucleation on Nanoparticles. Influence of Contact Angle and Line Tension.

Paul WAGNER, University of Vienna

Abstract: Particle new formation, ubiquitous in the global atmosphere, is frequently initiated by nucleation of critical molecular clusters. Initial condensational growth of freshly nucleated nanoclusters can be described as heterogeneous nucleation of vapours onto these clusters, which depends on the wetting behaviour for the condensing liquid on the nanoparticle surface. This wetting behaviour can be characterized by the contact angle between solid and liquid surfaces in the vicinity of the three-phase contact line. For macroscopic systems a number of experimental techniques are available for measurement of contact angles, however, in the nano-scale contact angles have so far been hardly accessible. Based on heterogeneous nucleation measurements we have achieved first direct experimental determination of contact angle and contact line curvature on a scale of 1nm. We have considered heterogeneous nucleation of supersaturated water vapour on nearly spherical and monodispersed Ag particles with well-defined seed particle radius r_p down to about 1.5 nm. From the slope of the activation curves we obtained the number n^* of molecules in the critical cluster using the *nucleation theorem*. On the other hand the onset saturation ratio, where 50% of the seed particles are activated, allows to determine the radius r^* of the critical cluster using the *Kelvin relation*. Based on r_p, r^* and n^* the microscopic contact angle as well as radius and curvature of the contact line can be directly obtained applying some algebra. We find microscopic contact angles around 15° compared to 90° for the macroscopic equilibrium angle. This can be attributed to line tension becoming increasingly dominant with increasing curvature of the contact line, as has been originally postulated by Gibbs.

16:35–16:45 Closing remarks and outlook

Ernő MÉSZÁROS, Hungarian Aerosol Society, honorary president

Minden érdeklődőt szeretettel látunk.